Attaching Files to Appointments and Tasks On A Computer Device

PRIORITY CLAIM

This Application claims priority of Provisional Application 60/437,599 filed 12/31/2002.

TECHNICAL FIELD OF THE INVENTION

This invention relates to electronic computing devices, and more particularly to a method for attaching files to appointments and other tasks on the electronic computer device.

BACKGROUND OF THE INVENTION

Prior art file attachments are typically files added to another file, such as an e-mail with an attached text document or media file. The attachment file is made part of another file or document.

A portable computer device such as a hand-held calculator, personal digital assistant (PDA) or personal learning tool (PLT) can store relatively large amounts of data, but data storage on such devices is always at a premium compared to full size computers. Prior art computers have used attachments as a mean of associating a file with another file, such as a data file with an e-mail. Prior art attachments are made by making a copy of the attached file and placing it in the host file.

SUMMARY OF THE INVENTION

The present invention provides "file attachments" to appointments or tasks in a software environment such as a planner or appointment book. The attachments are implemented as links or pointers to existing documents or files in the user's file system. Thus, in embodiments of the present invention, the term attachment does not necessarily include the prior art implication of actually placing a copy of the attached file in the appointment or task.

Embodiments of the present invention are directed to portable electronic devices where the conservation of memory to store the attachments is particularly advantageous.

In an embodiment, the appointment or task "attachment" is a link or a pointer to a file in the user's file system.

In another embodiment, any type of file can be "attached" to the appointment or task. Applications that are registered with the operating system can be used to open attached files with the corresponding file type.

An advantage of the present invention is that users can have multiple files attached to a single appointment or task.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 illustrates a hand-held device having features according to the present invention.

FIGURES 2a-e illustrate the screen display of a hand-held computer device according to an embodiment of the present invention.

FIGURE 3 illustrates a block diagram of a file system according to an embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Figure **1** illustrates a computer or hand held computing device **100** that incorporates features of the present invention. The device has a display screen **102** having a display area **104**. In this embodiment, the display is a touch sensitive display that uses a stylus for input (not shown). The device executes software described herein stored in memory **101** on the micro-processor **303**.

The display includes a header bar **106** that shows the current tool (in this case a compound document editor tool called "scribe"). The file name of the current open document on the display is also shown on the header bar. In addition, the header bar shows an icon for closing the tool **108** and a keyboard icon **110** to bring up a "QWERTY" keyboard on the display for input of characters with the stylus. The display area **104** further includes a top button bar **112** that has drop down menus for file, edit, insert and view functions. The display area **104** also has a bottom button bar **114** that has text formatting options, a keyboard button, and an icon **116** to pop-up another menu for inserting text symbols.

Figures 2a through 2d illustrate embodiments of the present invention. These figures represent screen displays for a portable computer device such as the one shown in Figure **1**. Figure **2a** shows a software application tool called "Planner." The Planner software application is used to manage the schedule and tasks of the user. In this embodiment, the Planner is a time management application directed to a student user.

Figure **2a** illustrates a schedule view **200** of the planner application. The schedule view has a top bar **202** that shows the date of the currently displayed schedule, and has arrow

buttons to move the date forward or backwards. A bottom button bar **204** has buttons for other views such as Details, Today and Task View. The details view and Task View are described further below. The Today button brings the schedule display to the current data.

The main display area of the schedule view **206** is divided into an appointment area **208** and a task area **210**. The appointment area **208** shows a list of events or appointments for the current day's schedule. The task area **210** shows a list of tasks for the current day's schedule. In the illustrated embodiment directed to a student type of schedule, the tasks are divided into "Assignments Due" and "To Do's." The distinction is that assignments are tasks for the student that must be done in response to the teacher's request, and perhaps be returned to the teacher, and the "To Do's" can be any other type of task that needs to be scheduled.

The "Assignments Due" portion of the task area includes a task called "Complete Hamlet Assignment" **212**. This task has an attachment according to an embodiment of the present invention. The attachment is indicated with an attachment icon **214** next to the task description as shown. The task icon can be any suitable graphical or textual representation, here it is represented by a paper clip icon.

Figure **2b** illustrates a task view **220** of the planner application. The task view can be activated by selecting the "Task View" button **216** on the bottom button bar **204** shown in Figure **2a**. The task view **220** allows the user to work just with the tasks in the planner application. The type of task displayed is controlled with the task drop down box **222**. In the illustrated embodiment, the Assignment tasks are displayed. The tasks displayed can be further restricted with the drop down box **224**.

Figure **2c** illustrates a task detail view **230** of the planner application. The task view can be activated by selecting the "Details" button **218** on the bottom button bar **204** shown in Figure **2a**. The task detail view **230** shows a variety of information details about the selected task. In the illustrated embodiment, the task detail view is shown as a cascading view partially covering the previous display. Further, the task detail view in this embodiment is divided into a details portion and a notes portion. The details portion or the notes portion is selected with a tab on the top tab bar **232**. The notes portion of the task details is a screen that allows the user to enter in a text note about the task. The details portion of the task can be as shown in the Figure. The task may contain such information as the category, date the task is due, reference to one or more attachments, reference to an appointment (See co-filed application), whether the task is repetitive (recurs at a given time interval), priority, task completion status, privacy status, etc.

Figure **2d** illustrates an attachment **240** associated with a task **212** in the planner application. The attachment for a task can be activated by selecting the attachment **234** in the task details view **232** shown in Figure **2c**, or by selecting the attachment icon **214** in the schedule view **200** or task view **220**. In the illustrated embodiment, the attachment view is shown as a cascading view partially covering the previous display. The attachment view may be a new application program that corresponds to the type of attachment file. In the illustrated embodiment, the attachment view is a text editor program that has opened a file called "Hamlet Assignment."

In the previously described embodiment, the attached file was associated with a task under the "Assignments Due" section of tasks. Similarly, the attachments could be made to tasks in the "To Do" portion of the task list.

In another embodiment, the attached file is associated with an appointment in the schedule planner application rather than a task. Figure **2a** shows an attachment **215** to an appointment. As described above, the attachment can be represented with a graphical icon. Also as described above, the attached document can be accessed in a similar manner by selecting the icon or by highlighting the appointment and using the details button.

In preferred embodiments of the present invention, the file attached to an appointment or task is not physically stored within the task or appointment. The attached file is stored independently and associated with the task or appointment by a link in the file system.

Figure **3** illustrates a method of associating the attached files with the task or appointments according to an embodiment of the present invention. The time management software application or planner **300** accesses the file system **302** through an applications peripheral (API) interface **304**. The tasks and appointment information of the planner application **300** is stored in a database **306**. This database **306** includes link information for attached files stored in the file system **302**. When the planner application wishes to access a file, the API **304** checks for any links associated with the file. Files that are linked to planner management entries, such as tasks or appointments would be monitored by the API. The API would perform such task as updating links, controlling deletion and copying of the file, etc. Further, if other application clients **308** seek access to linked files, the API could regulated this access also.

Again referring to Figure **3**, the planner application **300** also must access the system registry **310,** which stores the registration information for all the applications which can be used to access an attached file. The registration information includes the file types that can be handled by software applications installed on the device. The planner application **300** also can access a network **310** to communicate with other computers or planners over a wired or wireless network.

Other Embodiments

Although the present invention has been described in detail, it should be understood that various changes, substitutions, and alterations could be made hereto without departing from the spirit and scope of the invention as defined by the appended claims.

The features that are the subject of the present invention could be incorporated into other into other computer based teaching tools and computers. Similarly, other embodiments include the same user interface functionality in a ROM software application package that is executed on a computer, graphing calculator or other handheld device.